

Interim Guidance:
Initial Reporting of Findings from Comprehensive Energy and Water
Evaluations of Covered Facilities
(42 U.S.C. 8253 Subsection (f), *Use of Energy and Water Efficiency Measures in*
***Federal Buildings*)**
26 May 2009

I. Background

A. Authority

Section 432 of the Energy Independence and Security Act of 2007 (EISA) amends section 543 of the National Energy Conservation Policy Act, by adding a new subsection (f) *Use of Energy and Water Efficiency Measures in Federal Buildings* (42 U.S.C. 8253(f); referred to as “the statute” in this guidance). The new subsection prescribes a framework for facility energy project management and benchmarking, including the following elements:

- Designated “facility energy managers” for ensuring compliance of “covered facilities” subject to the requirements;
- “Comprehensive energy and water evaluations;”
- Implementation of identified efficiency measures;
- Follow-up on implemented efficiency measures;
- Web-based tracking system of covered facilities’ energy use, evaluations, projects, and follow-up;
- Benchmarking; and
- Summaries of agency implementation status in Office of Management and Budget (OMB) Scorecards.

B. Status of DOE Implementation of Requirements

The statute requires that the Secretary of Energy issue guidelines that each Federal agency shall follow for implementing the *Facility Energy Managers* and *Energy and Water Evaluations* provisions of the statute (42 U.S.C. 8253(f)(2) and (3)). Late last year, DOE issued the *Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities*, 25 Nov 2008 (http://www1.eere.energy.gov/femp/pdfs/eisa_s432_guidelines.pdf). This document established criteria for agencies to follow in defining facilities covered by the provision, designating facility energy managers to ensure compliance, and conducting comprehensive energy and water evaluations.

The statute required DOE to issue guidelines for the *Implementation of Identified Energy and Water Efficiency Measures*, and *Follow-up on Implemented Measures* provisions of the statute (42 U.S.C. 8253(f)(4) and (5)). Two interagency working groups were convened in the first quarter of FY 2009 to address project implementation guidance and measurement and verification of savings. These issues will be covered in one guidance document which will be circulated to agencies for comment in June 2009.

The statute also requires DOE to deploy a Web-based data collection and reporting system that tracks:

- Energy and water evaluations undertaken at covered facilities;
- Estimated cost and savings for measures to be implemented in a facility;

- Implementation of identified energy and water efficiency investments or energy conservation measures (ECMs);
- Follow-up on implemented measures;
- Measured savings and persistence of savings for implemented measures; and
- Facility benchmarking information.

An interagency working group meeting convened in October 2008 to review screen mock-ups and discuss appropriate level of detail to require. However, DOE's Federal Energy Management Program (FEMP) had no FY 2009 funding available for development of the Web-based tracking system. FEMP is now expecting supplemental funding to develop and deploy the system. Beta testing of the tracking system is anticipated to begin in the first quarter of FY 2010 with wide-spread agency use beginning in the second quarter of FY 2010.

C. Purpose of the Interim Guidance

The requirement for agencies to report and certify compliance is in the context of using a Web-based system. Currently, there is not a Web-based system available. However, many agencies have an action item on their OMB Energy Management Scorecards to report findings of comprehensive evaluations at their covered facilities. In the absence of the Web-based system, FEMP has prepared this interim guidance for agencies to use for reporting their initial findings. FEMP encourages agencies to take this opportunity to collect and report this information which will then be imported into the beta-test version of the tracking system.

This initial reporting will not be subject to compliance certification. Agencies will have an opportunity to review and revise their data in the Web-based tracking system before compliance certification.

II. Guidance for Reporting

A. Deadline for Reporting of Initial Findings

As noted on page 7 of the *Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities*, the statute requires that "Effective beginning on the date that is 180 days after the date of enactment of this subsection and annually thereafter, energy managers shall complete, for each calendar year, a comprehensive energy and water evaluation for approximately 25 percent of the facilities of each agency[.]" [42 U.S.C. 8253(f)(3)(A)]. Since 2009 is the first full calendar year after the effective date, the *Guidelines* therefore established the expectation that each agency will complete the first round of comprehensive evaluations by June 16, 2009. **The deadline for reporting on the findings of this first round of evaluations is June 30, 2009.**

B. Timeframe for Including Recently-Evaluated Facilities in Initial Findings

Agencies with facilities that have completed energy and water evaluations in the previous two calendar years (2007 and 2008) may count these evaluations toward the initial 25 percent requirement for the first round of reporting. In other words, agencies should report the findings of energy and water evaluations of their designated covered facilities completed between January 1, 2007 and June 16, 2009.

C. Data Elements Sought in Initial Findings Report

For the initial findings report from agencies, FEMP will only be seeking aggregated data from the comprehensive evaluations conducted to-date at each covered facility. Only information on identified *potential* projects, aggregated at the covered facility level, will be collected at this time. This information, along with the lists of covered facilities and assigned energy managers submitted by the agencies will become the foundation of the Web-based tracking system.

Follow-on reporting on projects actually implemented will be collected in the Web-based tracking system once it is deployed and agencies will have the option of tracking implementation status and savings data at the project level for each energy/water efficiency measure. It is FEMP's plan that reporting on implemented projects will be collected at two junctures, at the time of project award or obligation of funds and then again when the covered facility is re-evaluated and re-commissioned. In the future, project level reporting and certification may take on increased importance for quantifying avoided emissions and costs, as well as isolating agency energy performance from other factors such as weather, mission tempo, and other unavoidable variables.

D. Format for Reporting of Initial Findings

Accompanying this guidance is a revised version of the Excel spreadsheet that was included in the FY 2008 Annual Energy Management Data Report (http://www1.eere.energy.gov/femp/regulations/facility_requirements.html). This is the format that agencies used to provide their lists of covered facilities and assigned energy managers to FEMP in January 2009. Columns have been added to the spreadsheet to capture the data requested for the reporting of findings of the initial comprehensive evaluations.

Please note that the columns pertaining to facility location information and energy manager information have been hidden but are still available for use. These columns have been hidden to make the spreadsheet easier to use for purposes of entering evaluation findings. Users can paste their existing covered facility and energy manager data into the new spreadsheet and both the unhidden and hidden columns will be repopulated. (If you wish to display the hidden columns, select the column adjacent to either side of the columns you want to display. On the Format menu, point to Row or Column, and then click Unhide.)

Agencies may take this opportunity to update or refine their lists of covered facilities and energy managers along with reporting the initial findings of evaluations.

Considering earlier uncertainty regarding the status of the Web-based tracking system and the short-term nature of this reporting requirement, FEMP will accept multiple sheets from a single agency or Department if the agency has difficulty consolidating its findings across bureaus or sub-agencies. However, FEMP can only accept the reports from a single source within the Department or agency, typically the Interagency Energy Management Task Force member or headquarters agency energy coordinator.

To meet the minimum requirements of the statute, FEMP is requesting the following information for *each* covered facility which was evaluated during the period. These data elements are derived from the *Guidelines and Criteria for Energy and Water Evaluations* published in December 2008. A description of each of the spreadsheet data elements requested from the findings of comprehensive evaluations at covered facilities follows.

1. **Gross Square Footage Evaluated (Thou.)**---Enter in thousands of gross square feet the facility area covered by the comprehensive evaluation. Since agencies are free to define covered facilities as groups of buildings, it is understood that square footage of an entire covered facility may not have been included in the initial comprehensive evaluation.
2. **Estimated Implementation Cost of Measure(s) (\$)**---Enter in whole dollars (not thousands or millions) the estimated cost for implementing all of the efficiency measures identified in the evaluation. The implementation cost should not include the cost of financing the projects over time if using an energy savings performance contract or utility energy service contract.

As noted below, agencies may report estimated *annual* savings for data elements 3a, 3b, and 3c, or estimated *life-cycle* savings for data elements 4a, 4b, and 4c. If both annual and life-cycle savings data are available from the evaluations, the agency is encouraged to provide both data sets.

- 3a. **Estimated Annual Energy Savings (Million Btu)**---Enter in millions of site-delivered Btu the estimated *annual* energy savings expected from all identified efficiency measures.
- 3b. **Estimated Annual Water Savings (Thou. Gallons)**---Enter in thousands of gallons the estimated *annual* water savings expected from all identified efficiency measures.
- 3c. **Estimated Annual Cost Savings (\$)**---Enter in whole dollars (not thousands or millions) the estimated annual cost savings expected from all identified efficiency measures. This may include annually-recurring energy cost savings; water use and disposal (sewer) savings; operations, maintenance, and repair savings; and other annually-recurring savings identified as part of a life-cycle cost analysis.
- 4a. **Estimated Life-Cycle Energy Savings (Million Btu)**---Enter in millions of site-delivered Btu the estimated energy savings expected from all identified efficiency measures over the collective life spans of the measures.
- 4b. **Estimated Life-Cycle Water Savings (Thou. Gallons)**---Enter in thousands of gallons the estimated water savings expected from all identified efficiency measures over the collective life spans of the measures.
- 4c. **Estimated Present Value Life-Cycle Cost Savings (\$)**---Using the statutorily-required life-cycle cost methodology (<http://www1.eere.energy.gov/femp/information/download/blcc.html>), enter in whole dollars the estimated present value of cost savings expected from all identified efficiency measures over the collective life spans of the measures. This may include energy cost savings; water use and disposal (sewer) savings; operations, maintenance, and repair savings; and other annually-recurring savings identified as part of a life-cycle cost analysis.
5. **Retro/Re-Commissioned (Y, N, P, or NA)**---If the facility was retro- or re-commissioned as part of the comprehensive evaluation, enter a “Y” for yes. If retro- or re-commissioning was not included as part of the evaluation, enter “N” for no. If retro- or re-commissioning is

underway or otherwise not yet complete, enter “P” for pending. If retro- or re-commissioning is not applicable due to size of facility or expense, enter “NA”.

6. **Potential Measures Identified**---For each covered facility, indicate with an “X” in the appropriate column the types of potential efficiency measures identified during the evaluation process. Categories that potential measures fall under are listed below, with examples and more detail included in the appendix to this guidance.

- Boiler Plant Improvements
- Chiller Plant Improvements
- Building Automation Systems/EMCS
- Other HVAC
- Lighting Improvements
- Building Envelope Modifications
- CW/HW/Steam Distribution Systems
- Electric Motors and Drives
- Refrigeration
- Distributed Generation
- Renewable Energy Systems
- Energy/Utility Distribution Systems
- Water and Sewer Conservation Systems
- Electrical Peak Shaving/Load Shifting
- Rate Adjustments
- Energy Related Process Improvements
- Advanced Metering Systems
- Appliance/Plug-load reductions
- Other

F. Point of Contact

For additional information and to submit initial reports of findings from comprehensive evaluations in EISA Section 432 covered facilities, agency energy coordinators may contact:

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APPENDIX:
**TECHNOLOGY CATEGORIES AND ASSOCIATED ENERGY AND WATER
EFFICIENCY MEASURES**

- 1. Boiler Plant Improvements** - Efficiency measures such as, but not limited to:
 - Boiler control, including new controls and retrofits to existing controls
 - Replacement of existing boilers with high efficiency boilers
 - Boiler decentralization
- 2. Chiller Plant Improvements** - Efficiency measures such as, but not limited to:
 - Chiller retrofits or replacements
 - Chiller plant pumping, piping, and controls retrofits and replacements
- 3. Building Automation Systems/Energy Management Control Systems (EMCS)** - Efficiency measures such as, but not limited to:
 - Heating, Ventilating, and Air Conditioning (HVAC) upgrade from pneumatics to Direct Digital Control
 - Upgrade or replacement of existing EMCS systems
- 4. Heating, Ventilating, and Air Conditioning (HVAC, not including boilers, chillers, and Building Automation System (BAS)/Energy Monitoring/Management Control System (EMCS))** - Efficiency measures such as, but not limited to:
 - Packaged air conditioning unit replacements
 - HVAC damper and controller repair or replacement
 - Window air conditioning replacement with high efficiency units
 - Cooling tower retrofits or replacements
 - Economizer installation
 - Fans and pump replacement or impeller trimming
 - Thermal energy storage
 - Variable air volume retrofit
- 5. Lighting Improvements** - Efficiency measures such as, but not limited to:
 - Interior and exterior lighting retrofits and replacements
 - Intelligent lighting controls
 - Occupancy sensors
 - Light Emitting Diode technologies
 - Daylighting
 - Spectrally enhanced lighting
 - Fiber optic lighting technologies
- 6. Building Envelope Modifications** - Efficiency measures such as, but not limited to:
 - Insulation installation
 - Weatherization
 - Window replacement
 - Reflective solar window tinting

7. Chilled Water, Hot Water, and Steam Distribution Systems - Efficiency measures such as, but not limited to:

- Piping insulation installation
- Hot water heater repair and replacement
- Steam trap repair and replacement
- Repair or replacement of existing condensate return systems and installation of new condensate return systems

8. Electric Motors and Drives - Efficiency measures such as, but not limited to:

- Motor replacement with high efficiency motors
- Variable speed motors or drives

9. Refrigeration - Efficiency measures such as, but not limited to:

- Replacement of ice/refrigeration equipment with high efficiency units

10. Distributed Generation - Efficiency measures such as, but not limited to:

- Cogeneration systems installation
- Microturbines installation
- Fuel cells installation

11. Renewable Energy Systems - Efficiency measures such as, but not limited to:

- Photovoltaic system installation
- Solar hot water system installation
- Solar ventilation preheating system installation
- Wind energy system installation
- Passive solar heating installation
- Landfill gas, waste water treatment plant digester gas, and coalbed methane power plant installation
- Wood waste and other organic waste stream heating or power plant installation
- Replacement of air conditioning and heating units with ground coupled heat pump systems

12. Energy/Utility Distribution Systems - Efficiency measures such as, but not limited to:

- Transformers installation
- Power quality upgrades
- Power factor correction
- Gas distribution systems installation

13. Water and Sewer Conservation Systems - Efficiency measures such as, but not limited to:

- Low-flow faucets and showerheads
- Low-flow plumbing equipment
- Water efficient irrigation

- On-site sewer treatment systems

14. Electrical Peak Shaving/Load Shifting - Efficiency measures such as, but not limited to:

- Thermal energy storage
- Gas cooling

15. Energy Cost Reduction Through Rate Adjustments - Efficiency measures such as, but not limited to:

- Change to more favorable rate schedule
- Lower energy cost supplier(s) (where applicable)
- Energy service billing and meter auditing recommendations

16. Energy Related Process Improvements - Efficiency measures such as, but not limited to:

- Production and/or manufacturing improvements
- Recycling and other waste stream reductions
- Industrial process improvement

17. Advanced Metering Systems

18. Appliance/Plug-load reductions - Efficiency measures such as but not limited to:

- Replace air-cooled ice/refrigeration equipment
- Replace refrigerators
- De-lamp vending machines
- Plug timers
- Energy Star® products

20. Other – Efficiency measures that can not be included in any of the above categories.